SOIL conservation

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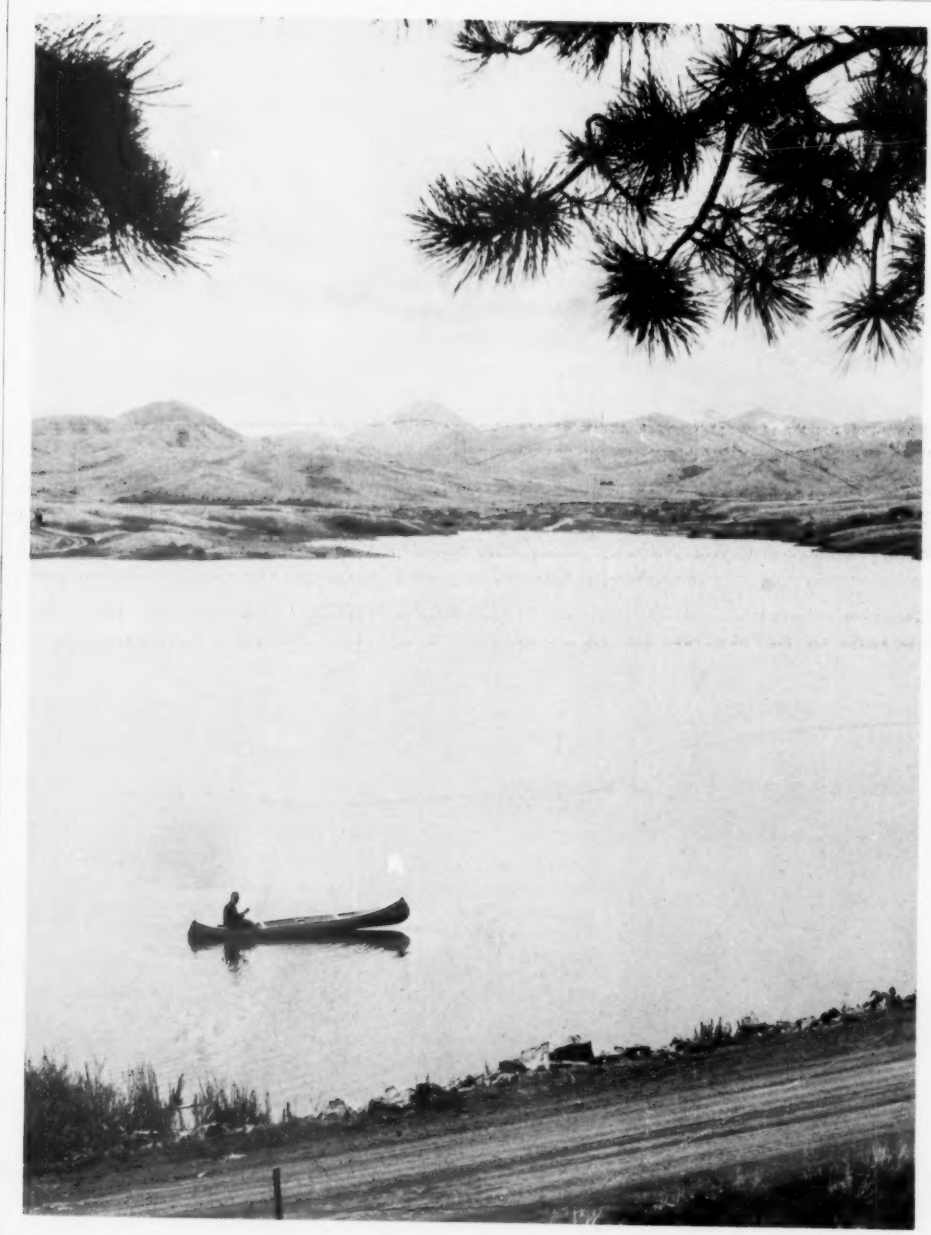

SOIL CONSERVATION

July 1973, Vol. 38, No. 12

Three men who know the Great Plains discuss the recreation potential of that vast area in this month's lead article. And Charles Phillips, in the center-spread article, outlines ways to protect and improve land that is used for recreation.

Recreation comes in many shapes and forms. If you get your fun from motorcycles, you may find "Motorcycle farm" of interest. Yes, SCS helped prepare a conservation plan for the farm.

Other articles this month discuss soil surveys (p. 264), wildlife areas (p. 266), and the junior board of supervisors of a conservation district in Tennessee (p. 271).

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COVER: Bear Paw Lake in the Beaver Creek County Park, south of Havre, Montana.

Prepared in the Division of Information, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C. 20250.

EARL L. BUTZ, Secretary of Agriculture

KENNETH E. GRANT, Administrator, Soil Conservation Service

PHILLIP A. CHAVEZ, Editor

GEORGIE A. KELLER, Production Editor

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Recreation: a new industry for the Great Plains?

by Richard L. Bury
Billy H. Hardman
and Robert E. Wagner

To many people, the Great Plains call up images of heat waves shimmering over flatlands, unrelenting sun, blizzards, duststorms and tornadoes, and mile upon mile of monotonous prairie. For them, this wide and relatively treeless area represents a recreation desert between the attractions of the western mountains and those of the eastern woodlands.

But to others, the Plains contain much of interest—great rivers, picturesque badlands, sandhills, canyons, mesas, spacious vistas, and even a manmade forest. The land is rich in the history of homesteading, cattle drives, the Sioux and other powerful Indian nations.

Recreation potential

The Great Plains can be developed to meet the recreation needs of many people. Natural, cultural, and historical assets occur in smog-free areas suitable for recreation and within a day's drive of 2 million people. The weather is conducive to many types of recreation in all seasons.

Upland game hunting and waterfowl hunting are big attractions. For example, pheasants of the Dakotas attract hunters from all over the nation.

Artifact hunting, rock hounding, and antique hunting are very popular. City dwellers are increasingly interested in history of the frontier and the homestead era. People drive many miles to see and relive the sights of their childhood and to tell their children or grandchildren about conditions during the early days.

Some of the canyon lands contain ancient rock carvings and inscriptions, interesting to many and of special attraction to camera buffs.

Opportunities on private land

Development of a recreation industry in the Great Plains could supplement and complement agricultural income while providing a needed service to recreation-seekers. In addition, a recreation industry can strengthen and stabilize the economic base of small rural communities.

Through recreation enterprises, the private landowner has an opportunity to gain supplemental income, diversify his base of operations, and support other businesses within the community through his purchases.

A landowner might offer public hunting of upland game by developing a rotation grazing system; cattle could be moved out of the better bird habitat during the hunting season. Simple wildlife shelters and water developments, habitat manipulation, and appropriate farming practices all could be used to concentrate upland game in selected areas.

Many canyons offer special possibilities for hiking and bird watching; minimum-development roads and picnic sites could be provided. Landowners adjacent to waterfowl lakes could develop and encourage field hunting.

Frontier history and the homestead era could come alive to

A fine site for a ranch resort.

The authors: Dr. Richard L. Bury is associate professor in the Recreation and Parks Department, Texas A&M University, currently on detail as assistant to the director, Division of Recreation, Forest Service, U.S. Department of Agriculture. Billy H. Hardman is range and wildlife staff officer, Roosevelt National Forest and Pawnee National Grassland, Fort Collins, Colorado. Robert E. Wagner is resource liaison officer, Pike-San Isabel National Forests, Pueblo, Colorado.

visitors through preserving windmills and storm cellars and displaying early farming implements and practices. Many of these opportunities can be better developed as a joint venture of the community or of several owners rather than a single owner.

A farmer or rancher who wishes to enter the recreation industry needs to inventory the possibilities on his land, identify alternatives that best complement his operation, evaluate his managerial and financial ability, and consider visitor prefernces.

He will need information from public agencies and private recreation managers. Help is available from many county, state, and federal agencies such as the Agricultural Stabilization and Conservation Service, Farmers Home Administration, Soil Conservation Service, Forest Service, Extension Service, state game and fish departments, and state recreation and parks departments.

And in the public agencies...

For many years, public agencies have helped develop the recreation potential of the Great Plains. They have advised ranchers and farmers concerning initiation and operation of recreation enterprises. In addition, agencies often develop recreation facilities on resources they administer and thus seek to complement the facilities offered by ranchers and farmers.

Through its Conservation Operations Program, the Soil Conservation Service provides technical assistance to landowners and operators who are considering land development for recreation. Under certain conditions, eligible participants in the Great Plains Conservation Program can receive limited cost-sharing assistance for recreation.

SCS also provides technical and financial help to sponsors of small watershed projects and of resource conservation and development projects who wish to develop public water-related recreation facilities within their project area.

Under authority of the Watershed Protection and Flood Prevention Act (Public Law 83-566, as amended), the Department of Agriculture can pay up to half the costs of enlarging a reservoir, buying additional land, and installing basic facilities for recreation, health, and safety.

Similar assistance is available under the RC&D program. Local sponsoring organizations pay their share of the recreation development costs, and they operate and maintain recreation facilities and other project structural measures.

Long-term watershed loans are available from the Farmers Home Administration to help project sponsors pay their share of construction costs.

The Farmers Home Administration also can lend money to farmers who want to increase their income by converting all or part of their land to income-producing outdoor recreation enterprises.

The Agricultural Stabilization and Conservation Service provides cost-share assistance to farmers for programs such as shelterbelts, wildlife habitat improvement, and fishing reservoirs and provides financial incentives to develop recreation opportunities on lands set aside from agricultural production.

The Forest Service provides recreation opportunities on the 18 National Grasslands and several National Forests it administers in the Great Plains. The professional staffs of these Grasslands and Forests have been very active in advising nearby ranchers and farmers about development of recreation enterprises.

State agencies also provide recreation opportunities through state parks and other recreation areas. Often, the administering departments are coordinated with state fish and game departments. Many states own and operate game management areas under a limited multiple-use concept whereby wildlife habitat and management is the primary use and other compatible uses are allowed.

Some states lease private lands for public hunting and fishing;

The Great Plains offers a variety in landscapes.

Riding and hiking trails have great potential in the Great Plains.

Remains of an old sod house built by early settlers in northwestern Oklahoma. Such attractions are of interest to many tourists.

these are used as if they were public lands but are managed by private owners. Income from recreation leasing, however, usually is secondary to income from agriculture.

Cooperation is essential

Management of the recreation resource, as with all resources of the Great Plains, can attain its highest development through a coordinated effort of all landowners.

Most of the Great Plains is privately owned, but public lands are scattered throughout. Ideally, development of a recreation industry should be coordinated among the landowners within market areas determined by the recreation attractions and the demand for them. Such coordination is a must in providing the type and variety of recreation opportunities desired. In this way, recreationists can be drawn to the area and spend sufficient time and money to make the recreation enterprises profitable.

No single agency or landowner need provide the full range of recreation opportunities. Instead, a farmer or rancher must rely on his neighbors to provide opportunities or facilities that complement his own services.

Recreation facilities on public lands should supplement those on private lands, rather than compete with them. Agencies are now encouraging private landowners to provide the necessary facilities where such developments would be profitable and where private lands have suitable characteristics and locations.

In addition to such coordination with private landowners, agencies should cooperate among themselves. This total effort for planned, orderly development can help insure high-quality recreation opportunities and can also allow full development without unnecessary duplication or overdevelopment. ♦

Motorcycle farm

by Orin W. Jaquish
and Jeffrey R. Loser
Soil conservationists, SCS
Leesport, Pennsylvania

Motorcycles, snowmobiles, and other types of all-terrain vehicles are enjoyed by many outdoor recreation enthusiasts—but are cursed by landowners whose fields are trespassed

Cyclists in the eastern Pennsylvania and New Jersey region, however, can ride any number of trails that traverse fields, woods, and meadows without trespassing or having to watch behind their shoulder for the police. MotoMecca gives them this opportunity.

MotoMecca could be called a "motorcycle farm." It is located near Lenhartsville, Pennsylvania, along U.S. Route 22, in the heart of the Pennsylvania Dutch country.

This is the first park or farm of its kind in Pennsylvania, but Clair Atwell, who developed the park and who is a cyclist himself, has assisted others in planning similar motor sporting parks throughout the East.

"Some people think that all cyclists are law-breakers," Atwell declared. "Once a woman actually threw a frying pan at me as I rode by on the street. We don't encourage motorcycle gangs to come to MotoMecca. This type of riding is not their style," he added.

The style of riding at MotoMecca is strictly off-road. There are climbs, jumps, and sharp turns. The trails run through fields, woods, and streams and range from difficult (marked by red triangle-shaped signs) to easy (marked by green circular signs). Those accustomed to street riding can find many surprises and thrills on these trails.

Safety is not overlooked at MotoMecca. "We inspect every cycle that we rent," Atwell explained. "Brakes, fuel, lubrication, and even a rider's protective clothing and helmet are checked. Then we make sure the rider has sufficient skills to ride the trails. We give special instruction to unskilled riders, and we have a safety patrol that rides over every trail. The park is open to all types of off-road vehicles, but motorcycles (trailbikes) are the most popular."

Atwell spent about 3 years searching for the "perfect" location for his motorcycle farm. As Atwell put it, "I was looking for a farm that wasn't making it for agricultural purposes. I needed a location that was close to major highways and metropolitan areas, and rolling terrain with woods and a stream was a must."

The surrounding environment is high on Atwell's priority list. The park is monitored for noise in decibels to insure that neighbors are not disturbed.

Atwell foresaw that the constant wear and tear on the soil by cycles could cause rills and gullies with each rain. Before one cycle rode over the property, he arranged through the local con-

Ready to hit the trails at MotoMecca in the Pennsylvania Dutch country. The style of riding is strictly off-road.

All trails were planned with help from the Soil Conservation Service. The motorcycles are contained in a set pattern of trails that are regularly maintained and stabilized.

servation district to get help from the Soil Conservation Service. Diversions, sod waterways, and critical area stabilization are all part of Atwell's conservation plan. Also, a light oil treatment on the trails helps to check erosion.

The vehicles at MotoMecca are contained in a set pattern of trails. The trails are regularly groomed and stabilized; erosion and other damage can thus be prevented or corrected readily.

"Controlling erosion is most important to us," said Atwell. "Trails with gullies discourage riders." The diversions not only slow surface runoff and help reduce erosion but also make the trails more challenging.

Protection of the environment combined with fun and profit have made MotoMecca a success, in Atwell's estimation. And his customers—those cyclists who enjoy off-road, all-terrain riding —say it's the best thing that ever happened to them. ♦

Soil surveys– a base for building codes

by W. Barry Baker
City manager
Canfield, Ohio

"The past 4 years of cooperation between the municipal officials of Canfield and SCS have produced the first workable building code based on soil conditions."

For its first 100 years, Canfield, Ohio, was a quiet, agricultural village located in the industrial complex of northeast Ohio. In the late 1950's, the community became one of the fastest growing cities in the area. It was developing into a prime residential community.

During this period of growth, the city council felt relatively secure. Their zoning ordinances and subdivision regulations had been adopted by the people. Then, in the middle 1960's, it readily became apparent that there were problems—severe problems. Basement walls began caving in. Streets started to break up.

It became evident that land that had produced bumper crops for farmers would not necessarily "grow homes and streets." The natural reaction was to blame poor construction or inadequate inspection for cracking walls and poor streets. After extensive investigation, however, it became apparent that improper construction could not account for all of the problems.

Fortunately, Canfield had been the site of the Mahoning Soil and Water Conservation District office since 1949. In early 1968, Fred Merrill, then district conservationist for the Soil Conservation Service, suggested to the city council that the basic problem might be the soil conditions. Soil scientists with SCS had just completed the soil survey for Mahoning County. These comprehensive maps identified the types of soil in the area.

Once the types were identified as Trumbull, Geeburg, and Remsen, it was relatively easy for Merrill to explain their characteristics and relate why there were problems. He told the council that soils were like people—they all don't act the same. These particular soils are similar to a sponge.

They expand when they are wet. Therefore, when the spring rains occur in Canfield and soils become saturated with water, they expand with such force that conventionally built basement walls are pushed inward. These soils also retain moisture and, therefore, are very susceptible to frost action. Over the course of a couple of winters, conventional roads built on these soils deteriorate rapidly.

The city council and planning commission met with the SCS men to determine what action should be taken. It was decided to have a private engineering firm design wall foundation requirements that would withstand excess water and extreme pressures. The engineering firm also would develop street construction standards to withstand these same water problems.

The Soil Conservation Service divided the soils into five groups defining the major problems—steep soils, wet soils, high shrinkwell soils, restricted soils (flood plains), and relatively favorable soils. The enginering firm drew up building codes to meet these different soil problems.

In early 1970, after being recently appointed as the first city manager in Canfield, I asked Merrill to take me on a "base-

ment tour," so that I could have an understanding of the extent of the problem. I recall a certain degree of skepticism to reports of gaping cracks in basement walls of houses that were less than 2 years old. The afternoon tour of the problem areas, however, convinced me that the reports had not been exaggerated.

Merrill told me that the only permanent solution for the owners of these houses was to reconstruct the foundations. He further stated that the only practical solution was to excavate the exterior of the basement walls and then backfill with a "cushioning" material. This procedure cost $2,500 to $3,000 per house and did not guarantee a permanent solution.

In one of my first reports to the council, I expressed my doubts as to whether new buildings were being built in compliance with the recently enacted foundation requirements. In private talks with the individual home builders, it was apparent that all were aware of the new requirements, and all were doubtful that their competitors were following the requirements. The home builders also stated that they would be willing to pay increased permit fees so that the municipality would be able to hire a full-time inspector.

The city council readily accepted the philosophy that their regulations would be only as effective as the inspection and authorized the employment of a full-time zoning inspector. Once again, SCS offered its continued assistance. Merrill arranged for a brief training program for an inspector with a soil scientist.

Under the direction of the city manager, and in close harmony with the SCS office, the zoning inspector is involved in coordinating the critical soil information with all aspects of community development. Plans for development now follow a definite flow chart. When a preliminary subdivision plan is submitted to the planning commission, it is referred to the design board, the engineering consultant, and SCS for technical adequacy. The past 4 years of cooperation between the municipal officials of Canfield and SCS have produced the first workable building code based on soil conditions.

During this period, Canfield has adopted a major thoroughfare plan based, in part, on the location of favorable soils. Currently, the city planning commission and the city council are revising and updating the comprehensive plan, zoning ordinance, and subdivision regulations. These revisions will incorporate the changes which we feel are needed to improve our control over uses of land in the problem soils area.

Our experience with the process of change or innovation might be somewhat unique. There definitely were visible problems. These problems resulted in costly maintenance for both the government and private individuals; therefore, there was no problem in explaining why these actions were necessary.

It has been very refreshing to deal with representatives of the federal government without having to fill out forms for Columbus, Chicago, or Washington. Maybe the innovation award was presented to Canfield because we have developed a program with federal assistance which has taken 4 years to evolve, and not once has there been any mention of "a HUD guideline." ♦

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This land is not for wasting

by **Bert J. Jahn**
Biologist, SCS
Ephrata, Washington

Waste land. Idle land. These terms are heard often in farming communities—and not in reference to anything good. Most people are opposed to waste and can't tolerate idleness.

In the Columbia Basin, an area of half a million acres in central Washington, odd areas that aren't producing crops are called waste land or idle land. These areas include ditch-banks, rights-of-way, and high spots that can't be irrigated. Some areas are less than an acre in size; others, like canal banks, extend for many miles.

Most of these odd areas are producing grasses, weeds, brush, or trees, so they really aren't idle. And if this vegetation is good for anything at all, then the areas aren't wasted.

Roger Wood, a landowner in Moses Lake, sees some definite value in these areas.

"They're good places for wildlife," he said. "Besides, the natural cover holds the soil in place."

Wood's thinking about odd areas is shared by the many Columbia Basin farmers who are putting new life into the land—wildlife. These farmers, in the last 5 years, have set aside 22,200 acres of uplands and 2,252 acres of wetlands for wildlife.

Odd areas in the Columbia Basin have always provided habitat for many beneficial forms of wildlife, from the alkali bee that insures seed crops by carrying pollen from plant to plant to the songbirds that feed on weed seeds and insect pests.

One of the most colorful inhabitants of these areas is the ring-necked pheasant. This hardy bird of Mongolian and Chinese extraction has made the Columbia Basin famous among sportsmen and students of birds.

The success of the pheasant in the Basin is tied directly to odd areas. Like all forms of wildlife, pheasants need food, water, and cover to survive. These essential elements must be close enough together so that they are readily available at all times. Ideally, they should be adjacent to each other.

Odd areas supply some food for pheasants, and they often have a water supply. But their big contribution is cover. High brush and cattails give protection from stormy weather, predators, and hunters. Low and medium grasses are fine for nesting, and moist, sedge-covered areas are favored for roosting at night.

A cock pheasant usually picks out a grassy area as his territory for the spring mating season. It is here that he assembles his harem, announcing his presence by crowing and flapping.

Were it not for the nesting cover provided by these odd spots, there would be few pheasants in the Basin. Wtihout them, a greater number of birds would be lost to the hay mowers.

The pheasant flock spends its leisure time in these areas, taking dust baths or just loafing in the sun. From there it makes trips out into cropland for a meal of caterpillars, grasshoppers, or waste grain. In these areas the chicks grow to maturity. There also the sportsman comes with his dog in the fall to harvest surplus birds.

The ring-necked pheasant, a widely hunted game bird in the Pacific Northwest, finds suitable habitat in "odd" areas.

A Russian-olive thicket (above) offers superb habitat for pheasants and songbirds; cattails and willows (below) stop soil erosion and provide good winter cover and escape cover for pheasants.

Many questions have been asked about managing odd areas. The answers aren't easy. Farm equipment can't ordinarily be used because most areas are too rough or hard to reach.

For controlling weeds, nothing does it better than a healthy stand of grass. It doesn't matter what kind, as long as the grass is perennial and vigorous. Crested wheat is suited to dry spots and tall wheatgrass to salty areas. Fertilizer helps, but it should contain enough nitrogen to favor grass over weeds.

Some farmers burn odd areas regularly in the hope of destroying weed seed. This rarely works. Annual weeds produce far more seeds than they need to propagate themselves. Even if 95 percent of the seeds are destroyed in the fire, the remaining 5 percent are enough to reseed the area.

Furthermore, burning creates a good seedbed for weed seeds. It sets back the perennial grasses, making them less able to compete with weeds. Burning also destroys badly needed cover for pheasants and other birds.

Nature always favors the perennials over the annuals. The best management then for these "wildlife areas" is to help when possible and refrain from interfering.

The birds will love us for it. ♦

Conservation and recreation sites

by Charles G. Phillips
Soil conservationist
Resource Development Division, SCS
Washington, D.C.

Land used for recreation needs conservation treatment just as much as land used for crops or grass or forest.

The Soil Conservation Service gives technical assistance in planning land use and conservation treatment for recreation developments. It provides landowners and recreation planners with resource information to help them determine site suitability for various types of recreation. SCS also helps gather the resource data, interpretations, and evaluations they need to develop suitable conservation alternatives.

Basic resource inventories

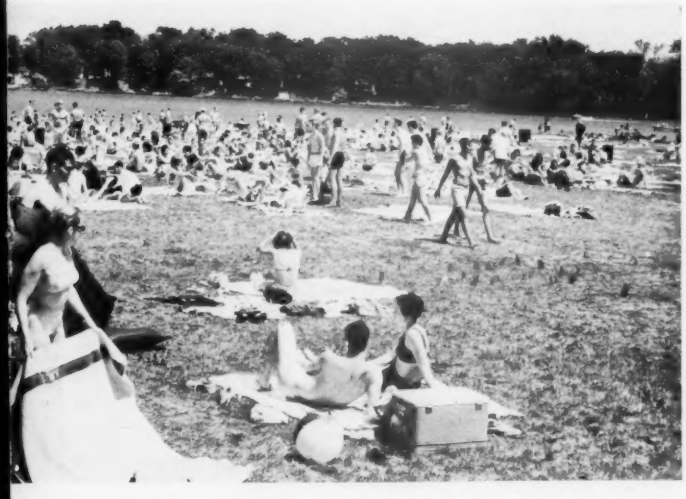
People considering recreation facilities should first inventory and evaluate the physical resources available.

Soil. A soil with certain characteristics may be suited for one kind of recreation development and wholly unsuited for another. The soil survey can be used to locate suitable sites for recreation facilities and for recreation related uses, such as second homes, access roads, ponds and reservoirs, septic tank disposal fields, and sewage lagoons.

Water. Quality of water and its supply are of major importance in recreation development. Before making decisions regarding such development, landowners should investigate watershed boundaries; potential impoundment sites; areas subject to flooding; irrigation water supply; drainage, irrigation, and other special purpose

(Right) More than 2 million families in the United States have second homes for use on weekends and during vacation. Selecting a suitable site can help prevent resource related problems.
(Right, center) The growing demand for outdoor recreation causes overcrowding of facilities on weekends and holidays.
(Extreme right) The Crow Wing Canoe Trail, developed largely through the efforts of the WesMin Resource Conservation and Development Project, provides excellent outdoor recreation opportunities.

(Left) A well-designed and well-managed pond can provide many hours of fishing enjoyment. (Below) Horseback riding is one of several recreation activities normally provided by the private sector. Proper maintenance of the trails helps to insure safety.



districts; and state water-quality classifications.

Plants. Developers should look into native and commercial plants suitable for erosion and sediment control, for intensive use areas or critical and fragile areas, for wildlife habitat, and for beautification.

Wildlife. Wildlife can add much to the enjoyment of campers, hikers, photographers, and naturalists. Provisions for increased wildlife populations should be planned into an outdoor recreation development. Surveys of wildlife population by species and of the potential for development are very useful to the landowner, as well as specific measures to improve food supply, habitat, and ponds.

Climate. Weather data, including amount of snowfall, number of continuous days of below-freezing temperatures, amount of rainfall during summer, and number of sunny days as opposed to cloudy days, are all useful in determining the potential for various kinds of recreation. Rainfall distribution and temperatures during the growing season are also important considerations, especially where grasses need to be maintained in intensively used areas.

Natural, scenic, and historic areas. Unless they are outstanding landmarks or a significant part of our heritage, natural, scenic, and historic areas generally cannot attract tourists on their own. Such areas, however, can add interest to a recreation enterprise. Many kinds of recreation facilities can be planned to supplement these attractions.

Resource conservation planning

The technical assistance that SCS provides for recreation sites is much the same as that provided for other land uses. The practices in the National Handbook of Conservation Practices and the standards and specifications for such practices determine the planning and implementation help that SCS gives.

Determining objectives. Usually the landowner has general objectives in mind when he goes to his conservation district for technical assistance. He may, however, refine his original objectives after reviewing data about soil suitability and limitations.

Data evaluation. The interpretations, analysis, and evaluation of basic resource data are done within the framework of the landowner's stated objectives. Practical alternatives are developed after evaluating the available resource data.

Recreation sites

SCS helps the landowner to appraise the physical suitability of sites for recreation facilities. Are there limitations? Can the limitations be overcome? What are the alternatives? What is the ultimate decision regarding physical limitations, economics, management, and maintenance? These and other questions should be considered in selecting a site for various recreation facilities and in their design.

Although SCS does not design recreation facilities, the conservation plan takes into account the size, shape, and location of the various facilities.

In developing a campground, for example, the location of campsites may be dictated by natural features, such as streams, lakes, topography, critical areas, and vegetation, as well as by the planning of manmade measures, such as septic tank waste disposal fields, sewage lagoons, access roads, ponds, lakes, diversions, and waterways.

Typical designs of recreation facilities assembled by the Park Practice Program of the National Conference on State Parks and designs from other sources are often used by recreation entrepreneurs, consultants, and others having a need for design assistance.

Protection and maintenance

If a recreation facility is designed and installed with care, a landowner can reduce maintenance and avoid future headaches.

Site protection during construction. Much of the soil erosion from new developments takes place during construction. The damage is usually in direct relation to the amount of bare soil. To reduce this damage, care should be taken to save trees, shrubs, and grasses, especially on hillsides.

Where most of the vegetation is removed during grading, debris basins, waterways, and diversions should be installed. Topsoil should be stockpiled for use in the finished grade. Seeding and mulching for a temporary cover may be needed.

All erosion control practices should be maintained throughout construction or until permanent vegetation is established. Some structures may be needed permanently.

Site protection during recreation use. Overuse is a common problem on recreation sites. Most facilities have a "people carrying capacity," that is, they are designed for a certain number of users per day. Traffic, weather, soils, and topography determine the carrying capacity of a recreation facility.

To often managers fail to limit use to the carrying capacity of the facility, or they fail to implement an effective maintenance program.

Fertilization, irrigation, reseeding, replanting, traffic control, and other maintenance practices often are needed to protect the facility during use.

Conservation practices. Prac-

Continued on p. 276

They're young, concerned, and active

by Roy Palk
Associate member
Macon County Soil Conservation District
Lafayette, Tennessee

Historically, leaders and activists in the conservation movement have been adults—Theodore Roosevelt, John Muir, Gifford Pinchot, Aldo Leopold.

Today, conservation leaders come in all sizes and ages. The Junior Board of Supervisors of the Macon County (Tennessee) Soil Conservation District is composed of seven teenagers and is a prime example of young conservationists in action.

In 1972, Jill Hauskins, Charlotte Jenkins, Beverly Vaughan, Ricky Cowan, Timmy Ferguson, Danny Law, and David Swindle were selected to serve as Tennessee's first junior board of supervisors of a soil conservation district.

"Young people of today have a genuine interest in working with adult conservation leaders to improve the quality of the environment in their communities," said James Painter, chairman of the Macon County Soil Conservation District.

"These young conservationists are helping to make known and enlist support for the district's efforts to control erosion, sedimentation, and pollution and for all the other conservation activities that combine to make Macon County a cleaner and better place in which to live."

Nominees for the junior board were selected on the basis of their accomplishments in 4-H clubs, Future Farmers of America, and Future Homemakers of America. From 18 nominees in sophomore, junior, and senior classes, the Macon County District Board selected seven young people to serve on the junior board.

The young board members quickly became involved in community activities. They played a leading role in the Macon County Youth Fair held for the first time in 1972. They have participated in all programs and meetings of the district board and have developed an ambitious list of projects to carry out during the year, including countywide cleanup day, conservation programs and displays in community schools, promotion of outdoor classrooms and conservation education activities, and participation in the annual statewide observance of Soil Stewardship Week.

"This opportunity to work in the conservation district movement can help these young people and their peers to learn more about local units of government," Painter said. "And it can teach them to contribute their views and opinions to the operation of local government. Young people are the future leaders of conservation districts and tomorrow's stewards of our resources."♦

Members of conservation district junior boards believe in action. Here Beverly Vaughan and Tim Ferguson hold a new district boundary sign as Rick Cowan loosens fittings on the old one. William B. Green, on the right, is president of the Macon Bank and Trust Company and a member of the Macon Soil and Water Conservation District Board of Supervisors. The Macon bank bought the new sign.

A most unusual district

by Leonard A. Anker
Resource conservationist, SCS
Carson City, Nevada

A soil conservation district without farmers—would you believe?

It's almost true in Nevada.

Tucked into the western corner of Nevada is the Tahoe-Verdi Soil Conservation District. This district takes in the city of Reno and works largely with land developers in the fabulous Lake Tahoe Basin. Ranchers? Well, you could probably count them on your fingers.

Much credit for the district's successful programs must go to John Buckwalter and to the board of supervisors, none of whom are ranchers or even connected with agriculture. Buckwalter is chairman of the board and a retired aircraft executive.

The district uses the soil survey to help carry out land use plans made in cooperation with

Lake Tahoe, often called the Lake in the Sky (elevation 6,229 ft.), is unique among the world's high-altitude lakes with its unusually clean, cold, blue and turquoise water. But constant vigilance is necessary to prevent pollution.

(Above) Preserving the beauty of the Tahoe Basin depends on people management. During the sixties the basin had an annual growth rate of 7.75 percent in permanent population. In 1970, at the height of the tourist season, more than 100,000 people were working or playing in the basin. Visitor days at state parks, golf courses, ski areas, private beaches, and other recreation facilities totaled almost 2½ million in 1970.
(Below) The Tahoe-Verdi Soil Conservation District, with assistance from the Soil Conservation Service, reviews all subdivision plans in the Nevada portion of the Tahoe Basin.

the Tahoe Regional Planning Agency.

To preserve a unique and fragile environment and to prevent eutrophication of crystal-clear Lake Tahoe, ecological factors get the highest priority.

The major effort is keeping sediment from entering the lake. As Buckwalter sees it, "If you stop the erosion, you stop the sediment." He feels that the district, with help from the Soil Conservation Service, is qualified to do just that.

The district also makes recommendations—most of which are adopted—to county planning boards on land development.

Washoe County's high regard for its conservation district is reflected in the financial aid it gives to the district. Because of this aid the district can operate an office at Incline Village.

Recent changes in Nevada district law will add a county representative to each board of supervisors. This board has already laid the groundwork to get a county planning director appointed to the board.

"The Tahoe-Verdi Soil Conservation District clearly illustrates the adaptability of districts in meeting resource challenges," commented Charles Krall, the SCS state conservationist. Anyway you look at it, it's a far cry from the usual conservation district operation. ♦

conservation in action

"A Special Genius"--SCS multimedia show

The new SCS multimedia presentation, "A Special Genius," went on the road late in May with a series of showings at Widener College, in Chester, Pennsylvania, under the auspices of the Delaware County Soil and Water Conservation District.

The 33-minute show, which uses three screens, six projectors, and a four-tract stereo sound system, derives its title from a statement by land use authority Marion Clawson: "One special genius of the American people is the independence, initiative, and imagination of typical citizens."

"A Special Genius" uses several brief vignettes, all photographed on location, to tell the story of soil and water conservation in the United States and something about the people who make the program work.

The presentation premiered last February at the annual convention of the National Association of Conservation Districts in Las Vegas and was subsequently shown to U.S. Department of Agriculture officials and their guests in the Department's Jefferson Auditorium in Washington, D.C.

Like other multimedia productions, "A Special Genius" requires several hundred pounds of electronic equipment and the talents of two operators to present.

"For this reason, we are forced to limit showings to large meetings, preferably of non-SCS and district people, generally in locations that we can reach by truck," reports Hubert Kelley, SCS information director and co-creator of the show with E. Joseph Larson, chief of the SCS audio-visual branch.

"A big national meeting of an environmental, wildlife, or educa-

E. Joseph Larson, chief of the SCS Information Division's Audiovisual Branch, checks several of the 15 pieces of electronic equipment needed to present the agency's new multimedia show, "A Special Genius."

tional group would be an ideal place to take our show," Kelley added, "particularly if the audience is one that entertains misconceptions about the work of SCS and the districts." ♦

Upstream dams reduce flood damage

Rains that caused severe flooding in Denver and parts of northeast Colorado last spring proved once again that land treatment and upstream flood prevention dams can reduce flood damages substantially.

M. D. Burdick, SCS state conservationist, cited two watersheds near Kiowa as indicative of the benefits provided by watershed protection projects.

Kiowa Creek, with a 125-square-mile drainage area upstream from Kiowa, caused little damage in Elbert County. Sixty-three flood prevention dams were installed in this watershed in 1961.

Running Creek, with no dams, caused more than $80,000 in damages to roads, bridges, machinery, crops, and livestock. The drainage area of Running Creek, which parallels Kiowa Creek several miles to the east, is only 100 square miles. Sediment damage was severe along Running Creek. A diesel truck was completely buried in mud north of Elizabeth.

Both watersheds received an average of 4½ inches of rainfall in 18 hours.

Burdick said the flood prevention dams on Kiowa Creek stored about 800 acre-feet (260 million gallons) of water and released it slowly for 2 days. This greatly reduced the peak flow. Measurements at Kiowa showed a peak flow of 2,000 cubic feet per second. The peak flow on Running Creek was 8,000 c.f.s.

Four days after the storm, the flow on Running Creek was down to 90 c.f.s., but Kiowa was flowing at 120 c.f.s., indicating that some water was still being released from the Kiowa project dams.

Unfortunately, benefits of the flood control structures were not felt in Wiggins, 75 miles downstream from Kiowa Creek, because of the vast areas of untreated watershed in Arapahoe, Adams, Weld, and Morgan Counties, which contributed uncontrolled runoff. ♦

Illinois field days set

Erosion control, wildlife management, and beautification practices will be installed on two Illinois farms in 3 days, from August 21 to 23, 1973.

Also, plans have been completed for a livestock waste management system to be constructed on one of the farms and to be demonstrated during the soil and water conservation show.

This waste management demonstration is sponsored by the Institute of Environmental Quality, the Environmental Protection Agency, and the Illinois Beef Industry Council. The engineering plans were prepared by the Soil Conservation Service and checked with the Agricultural Engineering Department at the University of Illinois.

The field days are being organized by the Illinois Chapter of the Land Improvement Contractors of America, with the support of the Soil Conservation Service and Extension offices, University of Illinois, districts, and equipment manufacturers.

The farms, owned by Ron Lawfer, are located in Jo Daviess County, 3 miles east of Stockton on U.S. 20. The public is invited. ♦

And on the farm there was a golf course

The farm pond now poses a hazard to golfers. And there are lush fairways where cattle once grazed.

Copiah-Lincold Junior College, near Wesson, Mississippi, has converted 100 acres of farmland into a 9-hole golf course. Other recreation facilities on the college's 446 acres include tennis courts and a baseball field.

The idea to convert part of the acreage to recreation use origi-

nated with Billy Thames, the president of the college. It got a boost from Sturge Dodds, a college trustee and commissioner of the Copiah County Soil and Water Conservation District. After the Soil Conservation Service helped prepare a conservation plan for the area, the idea was well on its way to becoming a reality.

First, terraces, fences, and hedge rows had to be removed from the 100 acres earmarked for the golf course. A drainage system had to be designed so excess rainfall could run off in a few hours. Some eroded spots had to be filled, shaped, mulched, and seeded to grass. Other areas had to be shaped, graded, and seeded.

An irrigation pit was dug to get water from a spring, and a sprinkler system was set up to irrigate the tees and greens.

The right kind of soil for greens is generally in limited supply and therefore a big cost to most golf course builders. President Thames, with the help of an SCS soil scientist, located soils that could be used to make up a mixture that was 70 percent sand, 20 percent clay, and 10 percent organic matter.

The big job was transporting the soil to the area to build the greens. Friends of the college helped, and most of the work was done with college equipment. This, estimated Thames, saved the college 50 percent of the cost of building the golf course.

Golfers began to play the course in 1968. Today, more than 100 students and faculty and their friends play in 1 day.

If the student body continues to expand, an 18-hole course will be in order—and the college is already working on this.

Co-Lin Junior College has given up farming on part of its acreage, but it hasn't forgotten that the land still needs treatment and protection, regardless of its use.—C. E. PERROTT, *district conservationist, SCS. Hazlehurst, Mississippi.* ♦

Conservation and recreation sites

Continued from p. 270

tices used on many recreation sites include access roads, critical area planting, dams, debris basins, dikes, disposal lagoons, diversions, fencing, field borders, firebreaks, fish stream improvement, fishpond management, grade stabilization structures, grassed waterways or outlets, heavy use area protection, hedgerow planting, pipelines, ponds, land grading and shaping, spring water development, streambank protection, and tree planting. In addition, many drainage, irrigation, and wildlife practices are applied.

Vegetation

Natural vegetation should be saved if possible when installing a recreation facility.

Any vegetation provides some control of noise and dust. Trees and shrubs in dense stands are very effective in reducing sound levels from heavily traveled roads or intensively used play fields. Plants break up sound waves, change their direction, and reduce their intensity. Proper landscaping can reduce noise about 60 percent, according to "Green Survival" published by the American Association of Nurserymen.

Vegetation also protects the recreation site by providing needed erosion and sediment control, and it safeguards fragile areas, critical areas, and heavy use areas. Vegetation provides traffic barriers, privacy screens, and shade, and it helps control dust and noise.

Alternatives to seeding grass may need to be considered. Such alternatives would include sodding, the use of sawdust, wood chips, gravel, or sand, and paving intensively used areas.

Followthrough

After the recreation facility has been completed and is in use, SCS can help to appraise the impact of intensive use on the basic resources, to revise plans because of land use changes, and to plan, design, and install additional conservation practices needed to improve the quality of the recreation area.

High-quality technical standards and specifications are necessary to avoid deterioration of the recreation area into a recreation slum. ♦

Recon . . .

Down to earth assistance has been provided to the Goddard Space Flight Center, Greenbelt, Maryland, by the Soil Conservation Service's National Plant Materials Center. A program to return Goddard's grounds to "nature," using seedings of various woody plants including loblolly pine and tatarian honeysuckle, should improve the grounds and reduce weekly mowing acreage from 400 acres to 60 acres. Erosion control and wildlife habitat improvement also are goals of the program.

Adding fuel to the crisis. Urban and suburban developers recently have come in for heavy criticism from environmental groups. Removing vegetation to make way for concrete and asphalt is a target of the critics. Reducing vegetation eliminates much of the natural cooling provided through plant transpiration and evaporation and through the lower solar energy absorption of plants. Thus, removing vegetation contributes to the energy crisis because it makes more air conditioning necessary.

Increasing farm wildlife. Tennessee landowners who want to increase the wildlife production on their land can contact the Tennessee Game and Fish Commission for help. "The Commission has expanded its landowner assistance program in the area of farm wildlife management," reported James L. Byford, assistant professor with the University of Tennessee Agricultural Extension Service. "Landowners who want help will be visited by a biologist who will make a wildlife management plan according to the landowner's wishes." Byford explained that the plan can be drawn up as intensively as desired, with the objective being to increase wildlife in Tennessee. The landowner has the option to hunt the land himself, let other people hunt, or not hunt at all.

Detecting blight. Plant breeders combating southern corn leaf blight have developed a rapid means of screening corn plants on a large scale to determine their resistance or susceptibility to *Helminthosporium maydis* (race T). The test involves injecting individual plants with a solution of blight toxin, then observing the reaction, if any, within 2 or 3 days. Because the new technique does not require the use of live disease organisms in the field, it eliminates any danger of contamination or accidental spread.

Heat and eat. Frozen and other convenience foods are going over big in Western Europe. Processed food sales are growing at double the rate of total food sales, with some convenience food volumes gaining at a rate of up to 20 percent per year. The sale of frozen foods is expected to triple by 1980, and the outlook is for a doubling of the institutional food volume to $280 million a year within 5 years.

In today's agriculture, almost every year brings some new technological development that could make a difference in the way farmers spend their money. That's the reason USDA's Statistical Reporting Service plans to launch an annual survey on the purchasing patterns of producers —asking them about their spending for such broad categories of farm goods as feed, seed, livestock, and fertilizer as well as production items that are common to both farm and nonfarm people: interest, taxes, cash wages, fuel, repairs.

Ecology's day in court comes on Fridays in Jefferson County, Kentucky. The county's new Ecology Court hears all environmental complaints and takes legal actions. It has heard about 1,000 cases to date and levied $17,000 in fines to area polluters. The charges range from burning leaves in backyards to serious air and water pollution offenses.

Hit the trail. A number of small cities in the state of Washington are designating streets as bicycle routes and erecting signs showing the designation. At the same time, they are on the lookout for rights-of-way under power lines, along irrigation canals, and over pipelines that can support multipurpose trail developments.

Construction guidelines. SCS Engineering Memorandum 66 (Rev. 1) of June 21 states guidelines for minimizing soil erosion and water and air pollution during construction carried on in whole or in part under agency programs. The need for pollution abatement will be determined on a site-by-site basis. Essential considerations for controlling pollution during construction include: minimum practicable exposure of erodible soils; temporary vegetative cover followed by permanent cover; control and disposal of runoff; temporary and permanent debris basins; dust suppression; temporary bridges or culverts where stream fording is damaging; protective measures against chemicals, fuels, lubricants, and sewage; safe placement of sanitary facilities; and prevention of grass or brush fires.

Review

New publications

Water and Our Future: An Urban Planning Manual for Local Officials. 1972. *National Association of Counties Research Foundation (Washington, D.C.). 111 pp. $5.45.* Discusses the water resources problem and gives an outline of the local elected official's role in the formulation of water resources decisions, policies, plans, and programs.

Landfill Decomposition Gases, an Annotated Bibliography. 1972. *National Environmental Research Center (Cincinnati, Ohio). 34 pp. $3.75.* Annotates articles concerning landfill gas generation and generation rates, gas composition, gas movement rates and travel distances, and gas control techniques.

Climate Change and the Influence of Man's Activities on the Global Environment. 1972. *National Center for Atmospheric Research (Boulder, Colo.). 31 pp. $3.75.* Discusses the possible effect of pollution caused by the impact of carbon dioxide, particulate matters, "albedo" changes, irrigation, and the direct release of heat on the earth's climate.

Growth and Yield Predictions for Upland Oak Stands, 10 years After Initial Thinning. By Martin E. Dale. 1972. *USDA Forest Service Research Paper NE-241, Northeastern Forest Experiment Station (Upper Darby, Pa.). 21 pp.* Based on 154 permanent plots, growth and yield equations were developed for upland oak stands that receive an initial thinning. Combinations or transformations of common stand variables, such as stand age, basal area, site index, and number of trees per acre were used. Estimates of yield in terms of total cubic-foot volume, cordwood, and board-foot volume are given for a wide range of stand age, basal area, and site quality conditions. Volume and basal-area growth predictions over a 10-year period are presented for the same wide range of initial stand conditions.

Federal Funds for Research Development and Other Scientific Activities, Fiscal Years 1970, 1971, 1972. *National Science Foundation, NSF 71-35, Volume XX. 242 pp. $2.* Twentieth in an annual series, this report provides comprehensive statistical information on the size and scope of federal obligations for scientific activities and the types of institutions and purposes to which such funds are directed.

Engineering Hydrology. By Jaromir Nemec. 1973. *McGraw-Hill. 316 pp., illus. $11.* Beginning with a concise treatment of surface water hydrology concepts, the book covers the measurement of all the connected elements of the hydrological cycle. It describes the most recent statistical and parametric methods for the processing and analysis of hydrological data. The book also has an international approach because it contains a critical synthesis of current practices and results of research in central and eastern Europe, the Ukraine, and other countries.

Bibliography of Water Quality Research Reports, June 1972. *U.S. Environmental Protection Agency, Office of Research and Monitoring. 45 pp.* The published reports listed were prepared by or for the Environmental Protection Agency and are available for purchase from the U.S. Government Printing Office or the National Technical Information Service (Springfield, Va. 22151).

What the U.S. Department of Agriculture Can Do When Natural Disaster Strikes. 1972. *USDA PA-533. 8 p.-illus. folder.* Outlines the help USDA can give and how to get that help when tornadoes, earthquakes, floods, and many other natural disasters strike.

Forest-Range Environmental Production Analytical System (FREPAS). By H. Fred Kaiser, Kenneth DeBower, Ronald Lockard, and John W. Putman. 1972. *USDA Agr. Hbk. 430. 211 pp., illus. $2.75* FREPAS provides the analytical and computer capability required by the Forest-Range Environmental Study (FRES), which was designed to (1) review the present national range situation, (2) project future needs, and (3) derive alternatives for future Forest Service range programs.

Site Preparation and Reforestation of Droughty, Acid Sands. By Russell M. Burns and Edwin A. Hebb. 1972. *USDA Agr. Hbk. 426. 61 pp., illus. $0.45.* Unmerchantable scrub oaks and wiregrass dominate millions of acres of sandhills land in the Southeast. Conversion to pine requires reduction of competition for moisture and nutrients and selection of species suited to the soil and climate. The bulletin recommends procedures, based on 45 years of research, for land managers and owners of small woodlands for site preparation and reforestation of the droughty, acid sands.

Rates and Depths of Mixing Lime and Fertilizer for Alfalfa. By O. H. Long, L. M. Safley, J. A. Odom, and Herman Morgan, Jr. 1972. *The University of Tennessee Agricultural Experiment Station Bull. 495 (Knox-*

ville). 41 pp., illus. This bulletin reports on eight rate-of-lime experiments on alfalfa. In all experiments except two, the rate of fertilization (phosphate and/or potash) was varied, and the micro-nutrient molybdenum was a variable in two experiments. Six soil series and four physiographic regions are represented. These are: Hartsells (Sumberland Plateau), Dickson and Mountview (Highland Rim), Maury (Central Basin), and Alcoa and Etowah (Valley of East Tennessee).

Conservation Activities for Girl Scouts. 1973. USDA PA-1009. *32 pp., illus. $0.50. Supersedes Soil and Water Conservation Activities,* USDA PA-664. This publication describes 21 activities on conservation practices or resource observations and studies based on ecological principles that underlie all conservation projects. Some of the activities include projects on soil formation; soil particle size; water intake in the soil; organic matter in the soil; life in the soil; movement of water through soil; and soils affecting plant growth. Most of the activities can be done by Girl Scouts of any age, although younger girls may need some help in applying the interpretations to the broad environmental problems of camp or community.

Soil surveys

Somerset County, Maine, Southern Part. By John R. Arno, R. B. Willey, W. H. Farley, R. A. Bither, and Bruce A. Whitney. *1972. Soil Conservation Service in cooperation with University of Maine Agricultural Experiment Station. 74 pp., illus.; maps 3.17 inches to the mile (1:20,000).*

Lane County, Kansas. By Kenneth H. Sallee. *1972. Soil Conservation Service in cooperation with Kansas Agricultural Experiment Station. 62 pp., illus.; maps 3.17 inches to the mile (1:20,000).*

Niagara County, New York. By Bradford A. Higgins, P. S. Puglia, R. P. Leonard, T. D. Yoakum, and W. A. Wirtz. *1972 Soil Conservation Service in cooperation with Cornell University Agricultural Experiment Station. 199 pp., illus.; maps 4 inches to the mile (1:15,840).*

Chilton County, Alabama. By R. B. McNutt. *1972. Soil Conservation Service in cooperation with Alabama Agricultural Experiment Station and Alabama Department of Agriculture and Industries. 82 pp., illus.; maps 3.17 inches to the mile (1:20,000).*

Ochiltree County, Texas. By Frankie F. Wheller. *1973. Soil Conservation Service in cooperation with Texas Agricultural Experiment Station. 47 pp., illus.; maps 3.17 inches to the mile (1:20,000).*

Meetings

July

1–6 National Education Association, Portland, Oreg.
8–11 American Association of Agricultural College Editors, Guelph, Ontario.
8–12 The American Society of Landscape Architects, Mackinac Island, Mich.
10–14 National Society of Professional Engineers, Chicago, Ill.
11–13 The Izaak Walton League of America, Duluth, Minn.
14–18 American Association of Nurserymen, Inc., Minneapolis, Minn.
22–25 National Association of Counties, Dallas, Tex.
21–25 National Association of County Park and Recreation Officials, Dallas, Tex.
26–27 Great Plains Agricultural Council, Manhattan, Kans.

August

12–15 Conservation Education Association, Murray, Ky.
15–17 American Society of Civil Engineers, Hydraulic Division Conference, Bozeman, Montana.
26–31 American Chemical Society, Chicago, Ill.

September

10–15 American Fisheries Society, International Association of Game, Fish and Conservation Commissioners, Disney World, Fla.
23–27 Society of American Foresters, Portland, Oregon.
24–28 First World Congress on Water Resources, "Water for the Human Environment," Chicago, Ill.
26–30 International Symposium on Underground Waste Management and Artificial Recharge, New Orleans, La.
29–Oct. 4 National Recreation and Park Association, Washington, D.C.
30–Oct. 3 National Agricultural Chemical Association, White Sulphur Springs, West Virginia.
30–Oct. 3 Soil Conservation Society of America, Hot Springs, Arkansas.
30–Oct. 4 Association of Conservation Engineers, Grand Canyon, Arizona.
30–Oct. 5 Water Pollution Control Federation, Cleveland, Ohio.

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From the Administrator.

By any other name . . .

Some people have accused the Soil Conservation Service of being "a promotional agency."

We couldn't agree more!

In the 1930's SCS promoted the establishment of local conservation districts to battle widespread gullies, duststorms, and abandoned farmland—believing that conservation could be accomplished better by voluntary local decisions than on the basis of federal regulations or requirements.

The result: more than 3,000 strong, capable local units of state government that have put an almost unbelievable array of conservation work on the land and have helped their communities meet many more aims besides control of soil erosion.

SCS promoted the planting of tree windbreaks and shelterbelts where wind erosion was a constant problem—and landowners responded by putting in three-fourths of a million miles of farmstead and feedlot windbreaks and nearly 100,000 miles of field windbreaks that not only slowed the wind but also made the countryside more scenic and helped increase wildlife habitat.

SCS promoted building terraces to aid in water control and to hold the soil in place—and conservation district cooperators put more than 1.2 million miles of terraces on their land, including the new kinds that can handle today's multirow farm machinery.

SCS promoted various forms of minimum tillage to cut soil erosion by as much as 95 percent—and landowners turned to this method of farming on 24 million acres in a decade, saving on fuel as well as soil.

SCS promoted local watershed protection and flood prevention projects—and the thousand projects completed or underway have prevented $270 million in flood damages, trapped 16.6 million tons of sediment, and brought $347 million in benefits from erosion control and grassland improvement. They've brought new jobs, new water supplies, and 6 million visitor-days of new recreation opportunity to rural communities.

SCS promoted a special conservation effort in the Great Plains to meet thorny climatic problems in farming and ranching—and 44,000 landowners signed long-term contracts under which they have converted or plan to convert 2.6 million acres of cropland to more suitable uses and have carried out other improvements for a better agriculture and cleaner air and water.

SCS promoted multicounty efforts to boost economic and social opportunities through natural resource improvements—and from 10 pilot projects the resource conservation and development effort has grown to cover more than a fourth of the United States, raising community incomes and hopes through local ideas and action.

SCS promoted the use of soil and other resource information to guide community growth as well as farm operations—many local governments now are helping to pay the cost of soil surveys to get the information faster.

Now, SCS is helping to spread the word about sanitary landfills to replace open dumps, about systems to recycle agricultural wastes, and about many more practices that can help meet environmental goals.

On whatever front of soil and water conservation SCS people may be working they'll present old and new ideas for good land use and good environmental quality—be it for 1 acre or the whole nation. They'll help put on the land the ideas that a landowner or community decides to adopt.

If helping to make America's land and water look better, produce more, and last longer makes us promoters, we'll enjoy the designation as we keep working.

Kenneth E. Grant